

**NOTE:** If you own a 1985 or later model, first check the Supplement at the back of the book for any new service information.

## CHAPTER FOUR

# ENGINE

All models covered in this book are equipped with an air-cooled, 4-stroke, single cylinder engine with a single overhead camshaft. The crankshaft is supported by 2 main ball bearings. The camshaft is chain-driven from the sprocket on the left-hand side of the crankshaft and operates rocker arms that are individually adjustable.

Engine lubrication is by wet sump with the oil pump located on the right-hand side of the engine next to the clutch. The oil pump delivers oil under pressure throughout the engine and is driven by the cam chain guide sprocket shaft.

The main difference between the ATC70 engine and the larger displacement ATC90, ATC110 and ATC125M engine is in the upper end (cylinder head, cylinder, cam and cam chain). The lower end (crankshaft assembly and crankcase) are almost identical in all models. To avoid confusion, some procedures are separated according to engine displacement.

This chapter contains information for removal, inspection, service and reassembly of the engine. In order to simplify this material the following components are covered in separate chapters:

- Alternator and ignition advance mechanism—Chapter Seven.
- Clutch and transmission—Chapter Five.

**Table 1** provides complete specifications for the engine and **Table 2** lists all of the engine torque specifications. **Tables 1-3** are located at the end of this chapter.

Before beginning work, re-read Chapter One of this book. You will do a better job with this information fresh in your mind.

Throughout the text there is frequent mention of the right-hand and left-hand side of the engine. This refers to the engine as it sits in the ATC's frame, not as it sits on your workbench. The right- and left-hand refers to a rider sitting on the seat facing forward.

### ENGINE PRINCIPLES

**Figure 1** explains how the engine works. This will be helpful when troubleshooting or repairing the engine.

### ENGINE COOLING

Cooling is provided by air passing over the cooling fins on the engine cylinder head and cylinder. It is very important to keep these fins free from buildup of dirt, oil, grease and other foreign matter. Brush out the fins with a whisk broom or small stiff paint brush.

#### CAUTION

*Remember, these fins are thin in order to dissipate heat and may be damaged if struck too hard.*

### ENGINE LUBRICATION

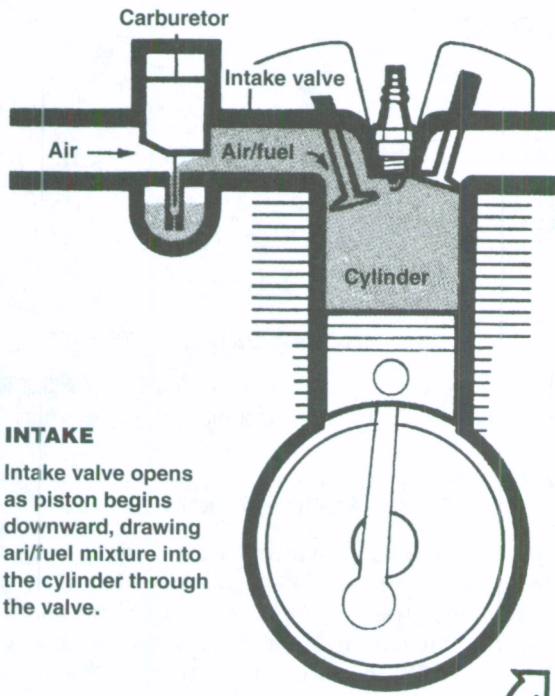
The oil flow path through a typical engine is shown in **Figure 2**. The oil pressure is supplied by the oil pump that is driven by the cam chain guide sprocket shaft.

### SERVICING ENGINE IN FRAME

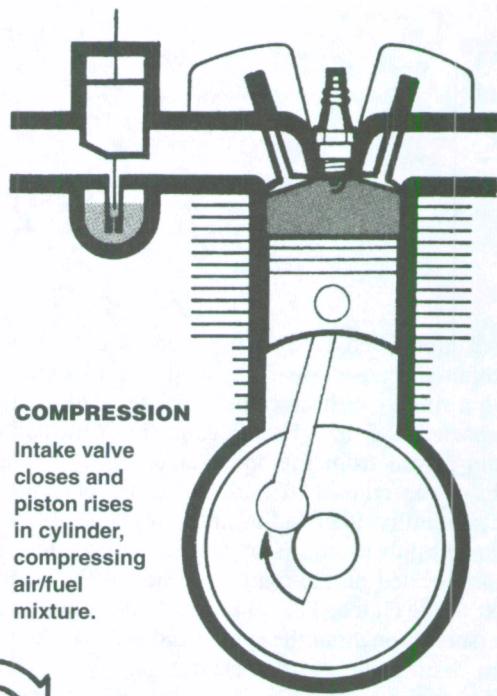
The following components can be serviced while the engine is mounted in the frame (the ATC's frame is a great holding fixture for breaking loose stubborn bolts and nuts):

- Camshaft.
- Cylinder head.
- Cylinder.
- Carburetor.
- Recoil starter.
- Alternator.
- Clutch assembly.
- External shift mechanism.
- Starter (ATC125M).

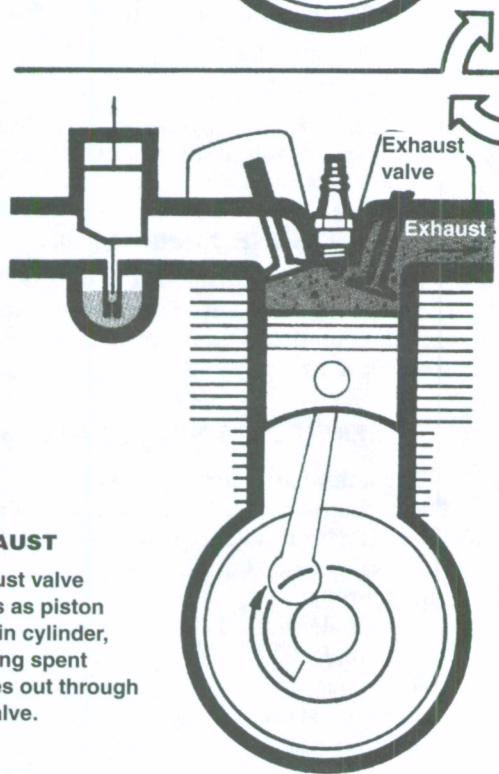
1

**FOUR-STROKE OPERATING PRINCIPLES****INTAKE**

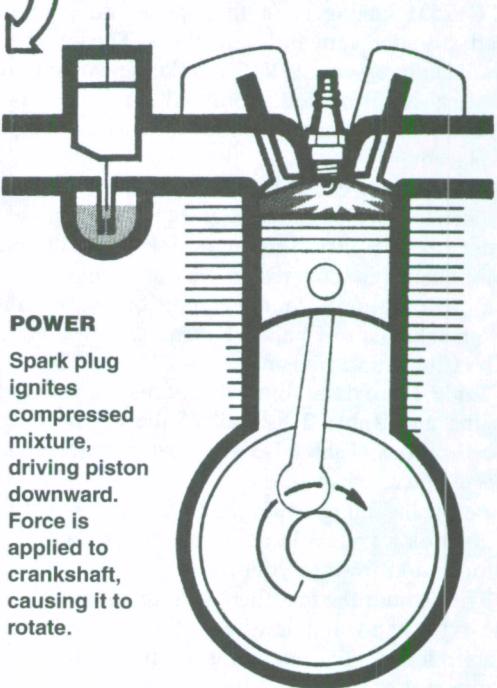
Intake valve opens as piston begins downward, drawing air/fuel mixture into the cylinder through the valve.

**COMPRESSION**

Intake valve closes and piston rises in cylinder, compressing air/fuel mixture.

**EXHAUST**

Exhaust valve opens as piston rises in cylinder, pushing spent gasses out through the valve.

**POWER**

Spark plug ignites compressed mixture, driving piston downward. Force is applied to crankshaft, causing it to rotate.

**Copyright of Honda ATC, TRX, FOURTRX 70-125, 1970-1987 is the property of Penton Media, Inc. ("Clymer") and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.**